

| Ref # | Hits | Search Query           | DBs                                      | Default Operator | Plurals | Time Stamp       |
|-------|------|------------------------|--|------------------|---------|------------------|
| L1    | 54   | norbornene adj3 isomer | USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT | OR               | ON      | 2004/11/23 14:58 |
| L2    | 15   | norbornene isomer      | USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT | NEAR             | ON      | 2004/11/23 14:59 |
| L3    | 31   | isomer adj3 norbornene | USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT | NEAR             | ON      | 2004/11/23 15:06 |
| L4    | 4858 | endo and exo           | USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT | NEAR             | ON      | 2004/11/23 15:06 |
| L5    | 25   | 1 and 4                | USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT | NEAR             | ON      | 2004/11/23 15:11 |
| L6    | 416  | 526/242.ccls.          | USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT | NEAR             | ON      | 2004/11/23 15:11 |
| L7    | 0    | 5 and 6                | USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT | NEAR             | ON      | 2004/11/23 15:11 |
| L8    | 0    | (1 or 2 or 3) and 6    | USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT | OR               | ON      | 2004/11/23 15:12 |

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| L3    | 31   | isomer adj3 norbornene | USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT | NEAR             | ON      | 2004/11/23 15:06 |
| L4    | 4858 | endo and exo           | USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT | NEAR             | ON      | 2004/11/23 15:06 |
| L5    | 25   | 1 and 4                | USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT | NEAR             | ON      | 2004/11/23 15:11 |
| L6    | 416  | 526/242.ccls.          | USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT | NEAR             | ON      | 2004/11/23 15:11 |
| L7    | 0    | 5 and 6                | USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT | NEAR             | ON      | 2004/11/23 15:11 |
| L8    | 0    | (1 or 2 or 3) and 6    | USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT | OR               | ON      | 2004/11/23 15:13 |
| L10   | 66   | exo near1 norbornene   | USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT | OR               | ON      | 2004/11/23 15:14 |

(FILE 'HOME' ENTERED AT 15:21:10 ON 23 NOV 2004)

FILE 'CAPLUS, USPATFULL, JAPIO, EUROPATFULL' ENTERED AT 15:21:30 ON 23 NOV 2004

|     |   |
|-----|---|
| L1  | 0 S ENDO EXO CONCENTRATION RATIO                      |
| L2  | 0 S ENDO EXO CONCENTRATION                            |
| L3  | 672 S NORBORNENE (3A) EXO                             |
| L4  | 956 S NORBORNENE (3A) ENDO                            |
| L5  | 132 S (FLUORO OR FLUORINATED) (3A) NORBORNENE         |
| L6  | 3 S L3 AND L4 AND L5                                  |
| L7  | 55 S NORBORNENE (3A) ISOMERS                          |
| L8  | 0 S L4 AND L7 AND L5                                  |
| L9  | 0 S EXO ENDO CONCENTRATION                            |
| L10 | 92 S EXO ENDO RATIO                                   |
| L11 | 255 S ENDO EXO (3A) RATIO                             |
| L12 | 192 S EXO ENDO (3A) RATIO                             |
| L13 | 0 S L11 AND L5  |
| L14 | 0 S L12 AND L5  |
| L15 | 34204 S NORBORNENE                                    |
| L16 | 60 S L15 AND (L11 OR L12)                             |
| L17 | 258091 S FLUORO OR FLUORINATED OR HEXAFLUOROISOPROPYL |
| L18 | 4 S L16 AND L17                                       |

L18 ANSWER 4 OF 4 USPATFULL on STN  
 AN 2003:141173 USPATFULL  
 TI Norbornyl-substituted silanes and the use thereof  
 IN Heldmann, Dieter, Muenchen; GERMANY, FEDERAL REPUBLIC OF  
 Schaefer, Oliver, Muenchen, GERMANY, FEDERAL REPUBLIC OF  
 Stohrer, Juergen, Pullach, GERMANY, FEDERAL REPUBLIC OF  
 PA Consortium fur elektrochemische Industrie GmbH, Munich, GERMANY, FEDERAL  
 REPUBLIC OF (non-U.S. corporation)  
 PI US 2003097015 A1 20030522  
 AI US 2002-255515 A1 20020926 (10)  
 PRAI DE 2001-147625 20010927  
 DT Utility  
 FS APPLICATION  
 LREP BROOKS & KUSHMAN, 1000 TOWN CENTER 22ND FL, SOUTHFIELD, MI, 48075  
 CLMN Number of Claims: 12  
 ECL Exemplary Claim: 1  
 DRWN No Drawings  
 LN.CNT 494  
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
 AB Silanes of the formula

$R_{sup.1}.sub.aR_{sub.4-a-x}SiL_{sub.x}$  (I)

where each R is identical or different and is a monovalent, optionally substituted hydrocarbon radical which is free of aliphatic carbon-carbon multiple bonds and has from 1 to 18 carbon atoms per radical,

$R_{sup.1}$  is an optionally substituted 2-norbornyl radical,

L is a leaving group,

a is 1, 2 or 3 and

x is 1 or 2,

with the proviso that the sum of  $a+x \leq 4$ , are useful for protecting functional groups of organic compounds (2) which have at least one functional group having an active hydrogen atom, preferably as a hydroxyl group --OH, a thiol groups --SH, an amine group --NH- or --NH.sub.2, a carboxyl group --COOH, or an amide group --CONH-- or --CONH.sub.2.

SUMM [0007] The hydrosilylation of dimethylchlorosilane using **norbornene** under Pt catalysis leads preferably to exo-2-(dimethylchlorosilyl)bicyclo[2.2.1]heptane. See, e.g., V. J. Eddy et al., J. ORG. CHEM. 1987, 52(10), . . . et al., J. CHEM. Soc. Dalton Trans. 1977, 1519-1525. This compound may also be referred to as norbornyldimethylchlorosilane (NM2-silane). Since **norbornene** is a disubstituted alkene, secondary alkyl radicals on silicon are thus accessible. Owing to the angle strain of **norbornene**, the reaction proceeds with considerably greater ease in comparison to other internal alkenes such as cyclopentene. The hydrosilylation of substituted **norbornene** derivatives using dimethylchlorosilane is likewise known. G. K. -I. Magomedov et al., J. GEN. CHEM. USSR (Engl. Transl.) 1988, 58(1), . . .

SUMM [0009] Mononorbornyl-substituted dichlorosilanes are likewise known. For instance, the Pt catalyzed hydrosilylation of dichloromethylsilane using **norbornene** has been described which delivers the desired dichloronorbornylmethylsilane in 85 % yield. M. Green et al., J. CHEM. Soc. Dalton. . .

DETD [0017] Examples of substituted R radicals include haloalkyl radicals such as the 3,3,3-trifluoro-n-propyl radical, the 2,2,2,2',2',2'-hexafluoroisopropyl radical, the heptafluoroisopropyl radical, and haloaryl radicals such as the o-, m- and p- chlorophenyl radicals.

Any substituent which does. . . .

- DETD [0024] Di(2-norbornyl)methylchlorosilane 3 is prepared by hydrosilylating **norbornene** using methylchlorosilane (H.sub.3CSiH.sub.2Cl). Tri(2-norbornyl)chlorosilane 5 is prepared by hydrosilylating **norbornene** using chlorosilane (H.sub.3SiCl). Di(2-norbornyl)dichlorosilane 8 is prepared by hydrosilylating **norbornene** using dichlorosilane (H.sub.2SiCl.sub.2).
- DETD [0041] **Norbornene** (141 g, 1.50 mol) is dissolved in toluene (100 ml) and heated to 80° C. After the addition of the. . . the temperature rises to 98° C. Heating is continued at 80° C for a further 1 h. Excess silane, unconverted **norbornene** and the solvent are distilled off at atmospheric pressure. The residue is fractionally distilled using a membrane pump vacuum. 255. . . (s, 3H), 0.25 (s, 3H); 0.6 (t, 1H); 0.9-1.1 (m, 4H), 1.2-1.4 (m, 4H), 2.1 (2 s, overlapping, 2H). The **exo/endo ratio** is 93:7 (GC). The analytical data reported always relate to the main isomer.
- DETD . . . at - 78° C and dissolved in precooled xylene (200 ml). The temperature is -10° C after the addition. First **norbornene** (34.5 g, 0.37 mol) and then the catalyst [COD]PtCl.sub.2 (1 % solution in CH.sub.2Cl.sub.2, 2.50 ml) are added, whereupon. . . C. After 15 min, the temperature begins to fall again. According to GC (gas chromatography), about 50 % of the **norbornene** is consumed. The reaction mixture is heated to 80° C for 15 min, then held at 40° C for a further 1.5 h. The conversion of the **norbornene** according to GC is >90%. The reaction mixture is fractionally distilled. The main fraction at b.p. 118° C/1 mbar consists. . . .

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